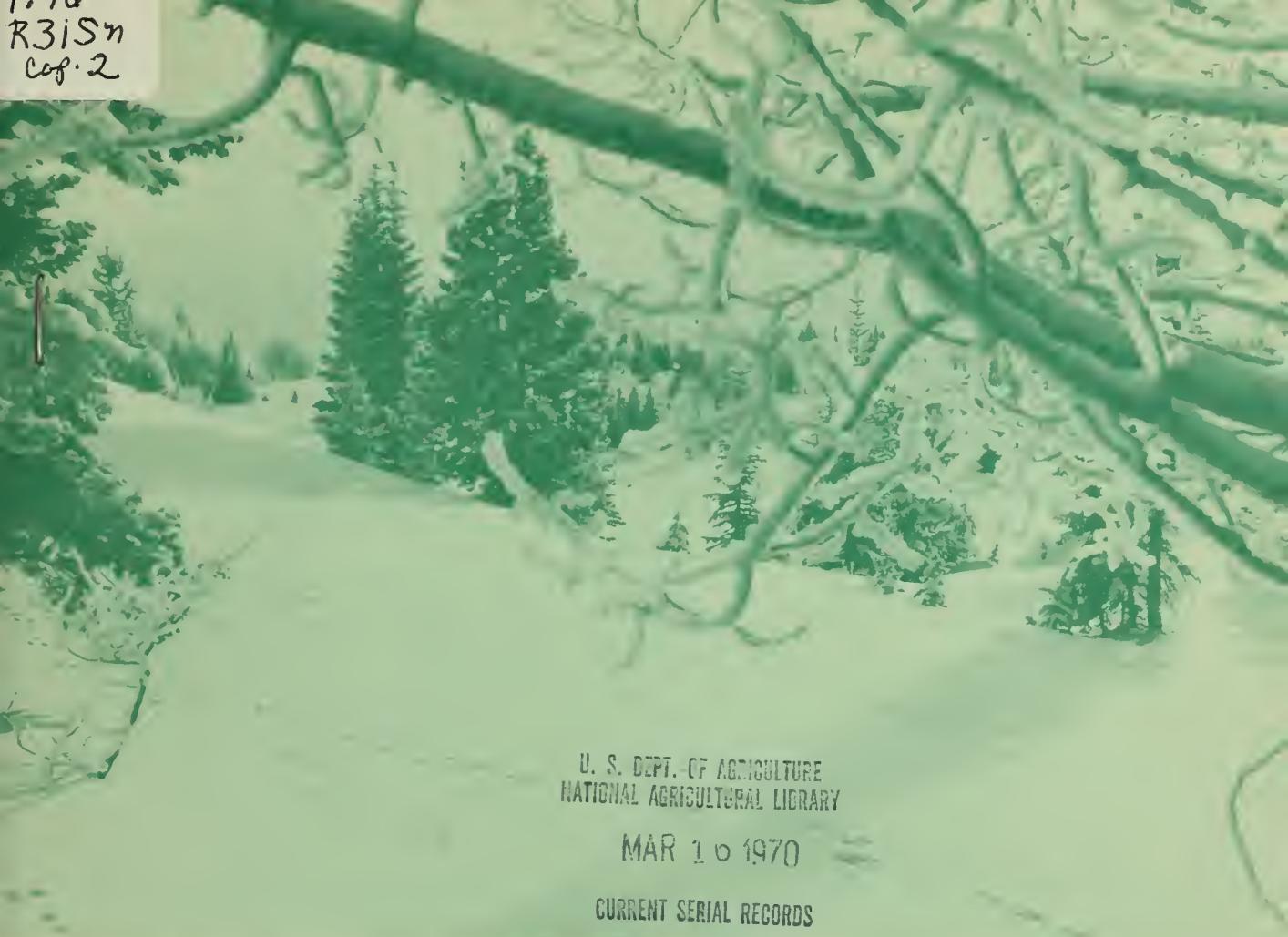


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MAR 10 1970

CURRENT SERIAL RECORDS

# **WATER SUPPLY OUTLOOK FOR ARIZONA**

and  
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE,  
SALT RIVER VALLEY WATER USERS ASSOCIATION  
and  
ARIZONA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies  
named above in cooperation with the Federal, State and pri-  
vate organizations listed on the last page of this report.

AS OF  
**MAR. 1, 1970**

## TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

## PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

| STATE              | ADDRESS   |
|--------------------|---|
| Alaska             | P. O. Box "F", Palmer, Alaska 99645               |
| Arizona            | 6029 Federal Building, Phoenix, Arizona 85025     |
| Colorado (N. Mex.) | 12417 Federal Building, Denver, Colorado 80202    |
| Idaho              | Room 345, 304 N. 8th. St., Boise, Idaho 83702     |
| Montana            | P. O. Box 98, Bozeman, Montana 59715              |
| Nevada             | P. O. Box 4850, Reno Nevada 89505                 |
| Oregon             | 1218 S. W. Washington St., Portland, Oregon 97205 |
| Utah               | 4012 Federal Building, Salt Lake City, Utah 84111 |
| Washington         | 360 U.S. Court House, Spokane, Washington 99201   |
| Wyoming            | P. O. Box 340, Casper, Wyoming 82601              |

## PUBLISHED BY OTHER AGENCIES.

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia.



# **WATER SUPPLY OUTLOOK FOR ARIZONA**

and  
**FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS**

*Issued by*

**KENNETH E. GRANT**  
ADMINISTRATOR  
SOIL CONSERVATION SERVICE  
WASHINGTON, D.C.

*Released by*

**M. D. BURDICK**  
STATE CONSERVATIONIST  
SOIL CONSERVATION SERVICE  
PHOENIX, ARIZONA

*In Cooperation with*

**RICHARD K. FREVERT**  
DIRECTOR  
ARIZONA AGRICULTURAL  
EXPERIMENT STATION

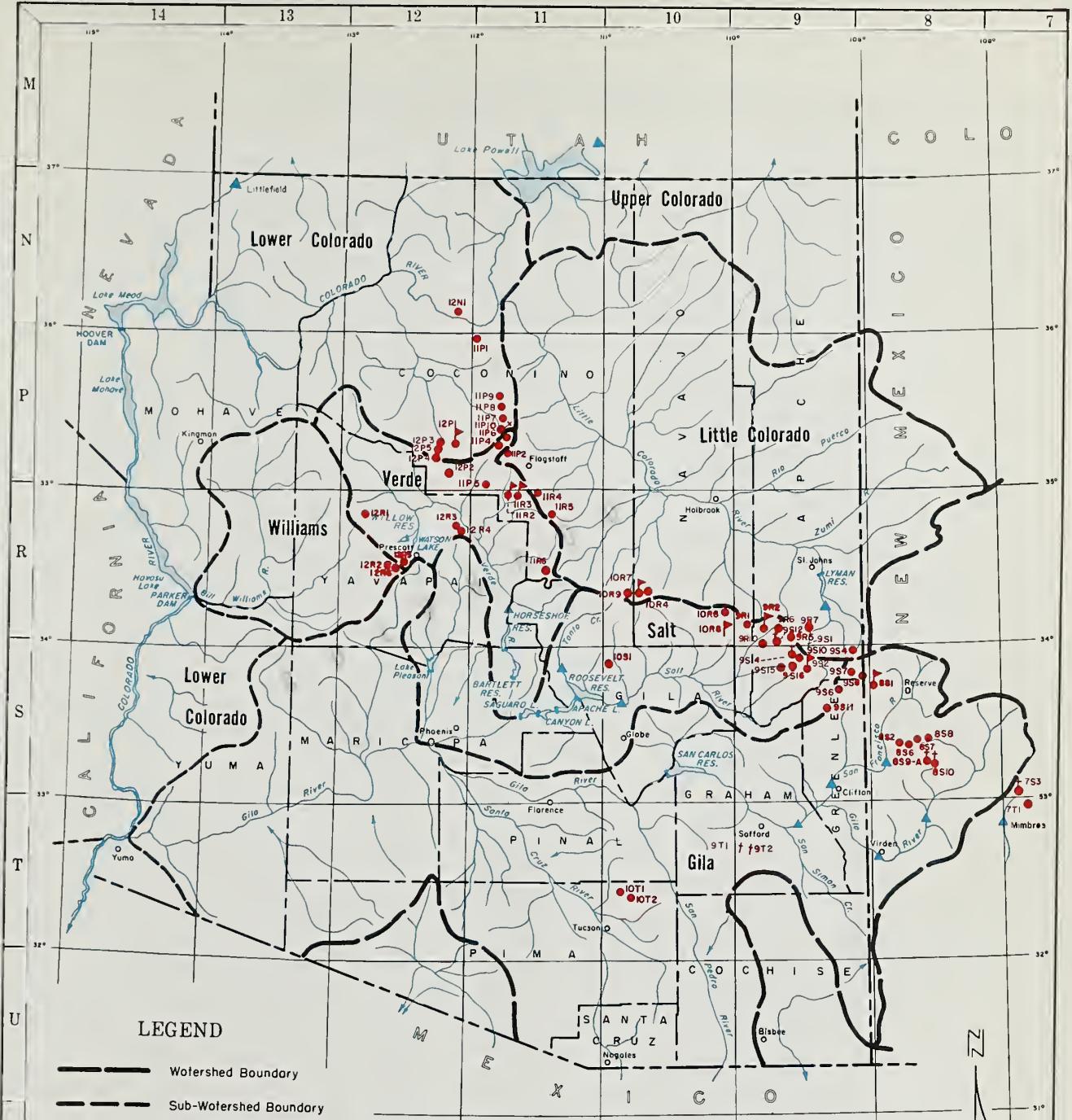
**VICTOR I. CORBELL**  
PRESIDENT  
SALT RIVER VALLEY WATER  
USERS ASSOCIATION

*Report prepared by*

**RICHARD W. ENZ, Snow Survey Supervisor**

SOIL CONSERVATION SERVICE  
ROOM 6029 FEDERAL BUILDING  
PHOENIX, ARIZONA 85025





## ARIZONA COOPERATIVE SNOW SURVEYS Snow Courses and Sub-Watersheds

25 0 25 50 75  
SCALE IN MILES

INDEX to SNOW COURSES and SOIL MOISTURE STATIONS

| <u>Number</u> | <u>Name</u>                | <u>Sec.</u> | <u>Twp.</u> | <u>Rge.</u> | <u>Elev.</u> | <u>River Basin</u> |
|---------------|----------------------------|-------------|-------------|-------------|--------------|--------------------|
| 11P10-A       | Agassiz                    | 32          | 23N         | 7E          | 11200        | Little Colorado    |
| 11R6          | Baker Butte (p)            | 4           | 12N         | 9E          | 7300         | Verde              |
| 9S1-A         | Baldy (p)                  | 28          | 7N          | 27E         | 9125         | Little Colorado    |
| 9S15          | Baldy #2                   | 12          | 6N          | 26E         | 10000        | Little Colorado    |
| 9S16          | Baldy #3                   | 13          | 6N          | 26E         | 11000        | Little Colorado    |
| 10T1          | Bear Wallow                | 6           | 12S         | 16E         | 8100         | Gila               |
| 9S6           | Beaver Head                | 13          | 4N          | 30E         | 8000         | San Francisco      |
| 12P5          | Bill Williams Intermediate | 17          | 21N         | 2E          | 8550         | Lower Colorado     |
| 12P4          | Bill Williams Summit       | 17          | 21N         | 2E          | 8950         | Lower Colorado     |
| 9S10-*        | Black River Divide         | 10          | 6N          | 27E         | 9400         | Salt               |
| 12N1          | Bright Angel               | 34          | 33N         | 3E          | 8400         | Lower Colorado     |
| 12R1          | Camp Wood                  | 3           | 16N         | 6W          | 5700         | Verde              |
| 10R7-M        | Canyon Creek #2            | 18          | 11N         | 15E         | 7500         | Little Colorado    |
| 10R9          | Canyon Point (p)           | 28          | 11N         | 14E         | 7600         | Salt               |
| 11R2-M        | Casner Park                | 19          | 18N         | 8E          | 6930         | Verde              |
| 12P1-M        | Chalender                  | 27          | 22N         | 3E          | 7100         | Verde              |
| 9R7           | Cheese Springs             | 28          | 8N          | 27E         | 8600         | Little Colorado    |
| 12R6          | Copper Basin Divide (p)    | 23          | 13N         | 3W          | 6720         | Verde              |
| 10R8-*        | Corduroy Creek             | 4           | 8N          | 21E         | 6000         | Salt               |
| 9S7           | Coronado Trail             | 26          | 5N          | 30E         | 8000         | San Francisco      |
| 9T2-A         | Crazy Horse                | 34          | 8S          | 24E         | 10200        | Gila               |
| 7T1           | Emory Pass #1              | 16          | 16S         | 9W**        | 7800         | Mimbres            |
| 7T2           | Emory Pass #2              | 16          | 16S         | 9W**        | 7800         | Mimbres            |
| 10R6          | Forest Dale                | 2           | 9N          | 21E         | 6430         | Salt               |
| 9R5           | Ft. Apache                 | 18          | 7N          | 27E         | 9160         | Little Colorado    |
| 11P2          | Ft. Valley (p)             | 22          | 22N         | 6E          | 7350         | Little Colorado    |
| 8S1-M         | Frisco Divide              | 31          | 6S          | 20W**       | 8000         | San Francisco      |
| 12R4          | Gaddes Canyon              | 11          | 15N         | 2E          | 7600         | Verde              |
| 11P1          | Grand Canyon               | 21          | 30N         | 4E          | 7500         | Lower Colorado     |
| 9S11          | Hannagan Meadows (p)       | 19          | 3N          | 29E         | 9090         | Salt               |
| 11R5          | Happy Jack                 | 30          | 17N         | 9E          | 7630         | Verde              |
| 9R10          | Hawley Lake                | 13          | 7N          | 24E         | 8300         | Salt               |
| 10R4          | Heber (p)                  | 28          | 11N         | 15E         | 7600         | Little Colorado    |
| 9T1-A         | High Peak                  | 34          | 8S          | 24E         | 10500        | Gila               |
| 8S9-A         | Hummingbird                | 19          | 11S         | 17W**       | 10550        | San Francisco      |
| 8S6           | Ice King                   | 6           | 11S         | 18W**       | 8020         | San Francisco      |
| 11P9          | Inner Basin #1 (p)         | 28          | 23N         | 7E          | 10000        | Little Colorado    |
| 11P8          | Inner Basin #2 (p)         | 28          | 23N         | 7E          | 9750         | Little Colorado    |
| 11P7          | Inner Basin #3             | 3           | 23N         | 7E          | 10250        | Little Colorado    |
| 12R2          | Iron Springs               | 22          | 14N         | 3W          | 6200         | Bill Williams      |
| 9S2-A         | Maverick Fork (p)          | 13          | 6N          | 27E         | 9150         | Salt               |
| 7S3-A         | McKnight Cabin             | 10          | 15S         | 10W**       | 9300         | Mimbres            |
| 9R2-M         | McNary                     | 23          | 8N          | 23E         | 7200         | Salt               |
| 9R1           | Milk Ranch                 | 33          | 8N          | 23E         | 7000         | Salt               |
| 12R3          | Mingus Mountain            | 3           | 15N         | 2E          | 7100         | Verde              |
| 8S2           | Mogollon                   | 2           | 11S         | 19W**       | 7000         | San Francisco      |
| 11R4          | Mormon Lake                | 13          | 18N         | 8E          | 7350         | Little Colorado    |
| 11R3-M-A      | Marman Mountain (p)        | 14          | 18N         | 8E          | 7500         | Verde              |
| 9S12-A        | Mt. Ord                    | 4           | 6N          | 26E         | 11000        | Salt               |
| 11P5-M        | Newman Park                | 25          | 19N         | 6E          | 6750         | Verde              |
| 9S4           | Nutrioso                   | 23          | 6N          | 30E         | 8500         | San Francisco      |
| 8S7           | Redstone Trail             | 5           | 11S         | 18W**       | 8600         | San Francisco      |
| 10T2          | Rose Canyon                | 15          | 12S         | 16E         | 7300         | Gila               |
| 8S8           | Silver Creek Divide        | 4           | 11S         | 18W**       | 9000         | San Francisco      |
| 9S14-A        | Smith Cienega              | 10          | 6N          | 26E         | 9850         | Salt               |
| 11P4          | Snow Bowl #1 (p)           | 36          | 23N         | 6E          | 10260        | Verde              |
| 11P6          | Snow Bowl #2               | 31          | 23N         | 7E          | 11000        | Verde              |
| 9S8           | State Line                 | 6           | 6S          | 21W**       | 8000         | San Francisco      |
| 12P2          | White Horse Lake Jct.      | 2           | 20N         | 2E          | 7150         | Verde              |
| 12R5          | White Spar                 | 19          | 13N         | 2W          | 6000         | Verde              |
| 8S10-A        | Whitewater                 | 19          | 11S         | 17W**       | 10750        | Gila               |
| 12P3          | Williams Ski Run           | 9           | 21N         | 2E          | 7720         | Lower Colorado     |
| 9R6           | Wilson Lake (p)            | 4           | 7N          | 26E         | 9000         | Salt               |
| 10S1          | Workman Creek              | 33          | 6N          | 14E         | 6900         | Salt               |

M      SOIL MOISTURE STA.  
(p)    STORAGE GAGE

A      AERIAL SNOW DEPTH MARKER

..      SOIL MOISTURE STA. ONLY  
:::    NM PRINCIPAL MERIDIAN

## ARIZONA WATER SUPPLY OUTLOOK

MARCH 4, 1970

\*  
\*      The heavy storm occurring in the first few days of March has \*  
\* improved the water supply outlook slightly. Streamflow forecasts \*  
\* have been increased, but are still much below average. With re- \*  
\* servoir storage high, normal water supplies are expected this year\*  
\* in most areas.  
\* \*

### SNOW COVER

Practically no snow fell on the Salt and Verde Watersheds up to the last day of February, but the Gila Watershed received a modest storm in the eastern section. As of February 27, when most surveys were made, snow cover was virtually zero on the Verde and Gila Watersheds, 13 percent of average on the Salt, and 25 percent on the Little Colorado. The early March storm, however, changed this considerably. Heaviest snowfall occurred in the Grand Canyon-Flagstaff area with amounts up to 30 inches reported. In the White Mountains, reports of 12 inches at Big Lake and 10 inches at Wilson Lake were received. Aerial snow surveys in the Gila Wilderness indicate 18 to 20 inches of new snow. This makes a total of 80 inches containing 19.6 inches of water at Whitewater snow course.

### PRECIPITATION

The heaviest storm of the winter occurred February 28 to March 3, dropping particularly heavy precipitation in the Prescott-Flagstaff area and along the Rim. Some of the heavier amounts received were 6.30 inches at Crown King, 4.30 inches at Groom Creek, 5.50 inches at Junipine, 3.60 inches at Flagstaff, 2.95 inches at Prescott, 4.05 inches at Tonto Fish Hatchery, and 2.92 inches at Payson. Generally, lesser amounts were received in the White Mountains, although McNary reported close to 3 inches.

### SOIL MOISTURE

Surface soils were quite dry before this storm, so much of the precipitation was absorbed by the soil. The very wet surface soil condition now present is conducive to good runoff if additional storms materialize as predicted.

### RESERVOIR STORAGE

Stored water in all major reservoirs is very good. Salt River Project Reservoirs, presently containing 71 percent of capacity, are 36 percent above average for this date. San Carlos and Lake Pleasant are 62 and 71 percent above average respectively. The Colorado River Reservoirs contain 53 percent above the average amount of water. Runoff from the recent storm is increasing storage in Arizona reservoirs. Watson Lake, near Prescott, rose 8 feet during the storm.

## STREAMFLOW AND WATER SUPPLY

The Verde River responded rapidly to the heavy precipitation, rising from 250 cfs to a peak of 4,300 cfs on March 2. By March 4 it dropped back to 1,800 cfs, but is expected to flow moderately for several days. The Salt River is rising slowly.

All streamflow forecasts for streams originating in Arizona have been raised. Salt River Project streams are forecast to produce 146,000 acre-feet during the March-May period, 31,000 acre-feet more than previously expected. This is, however, still only 44 percent of the 1953-67 average. The Gila River near Solomon is predicted to flow 34,000 acre-feet at 47 percent of average. The only near normal runoff expected is for the Colorado River. The 6,005,000 acre-foot prediction is 92 percent of average.

Water supplies will be adequate on all projects served by stored water, since reservoir storage is above average. Considerably pumping will be required along the Upper Gila River and on the San Carlos Project.

ABOUT  
MARCH 1, 1970  
**STREAMFLOW FORECASTS**

| BASIN STREAM and/or FORECAST POINT                                    | THIS YEAR                         |                       | PAST RECORD        |                                 |
|---|-----------------------------------|-----------------------|--------------------|---------------------------------|
|   | FORECAST<br>Thousand<br>Acre Feet | Percent of<br>Average | FORECAST<br>PERIOD | THOUSAND ACRE FEET<br>Last Year |
| <b>SALT RIVER DRAINAGE</b>  |                                   |                       |                    |                                 |
| Salt nr. Roosevelt  | 75                                | 37                    | Mar-May            | 275.8                           |
| Tonto Creek nr. Roosevelt   | 6                                 | 27                    | Mar-May            | 27.0                            |
| Verde River above Horseshoe   | 65                                | 61                    | Mar-May            | 171.6                           |
| <b>GILA RIVER DRAINAGE</b>  |                                   |                       |                    |                                 |
| Gila River nr. Gila   | 20                                | 62                    | Mar-May            | 18.2                            |
| Gila River nr. Solomon  | 34                                | 47                    | Mar-May            | 32.4                            |
| Gila River nr. Solomon  | 16                                | 42                    | March              | 10.9                            |
| Gila River nr. Virden   | 18                                | 50                    | Mar-May            | 18.7                            |
| Frisco River at Clifton   | 17                                | 44                    | Mar-May            | 20.0                            |
| Frisco River at Glenwood  | 6.5                               | 41                    | Mar-May            | 6.5                             |
| <b>MIMBRES RIVER DRAINAGE</b>   |                                   |                       |                    |                                 |
| Mimbres River nr. Mimbres   | 2.0                               | 83                    | Mar-May            | .5                              |
| <b>COLORADO RIVER DRAINAGE</b>  |                                   |                       |                    |                                 |
| Little Colorado River above Lyman Dam                                 | 1.8                               | 23                    | Mar-June           | 7.8                             |
| Colorado River -- Lake Powell Inflow *                                | 6005.0                            | 92                    | Apr-July           | 8162.0                          |
| <b>VIRGIN RIVER DRAINAGE</b>  |                                   |                       |                    |                                 |
| Virgin River nr. Littlefield  | 17                                | 51                    | Apr-June           | 182.9                           |
| <b>GRANITE CREEK DRAINAGE</b>   |                                   |                       |                    |                                 |
| Granite Creek   | 1.5                               | ---                   | -----              | ----                            |
| Willow Creek  | .6                                | ---                   | -----              | ----                            |
| Gila River near Solomon is expected to drop to 100 cfs by April 21.   |                                   |                       |                    |                                 |
| + Based on the 15-year period 1953-1967                               |                                   |                       |                    |                                 |
| * Forecast issued by Soil Conservation Service, Salt Lake City, Utah. |                                   |                       |                    |                                 |
| - 2 -   |                                   |                       |                    |                                 |

ABOVE  
MARCH 1, 1930

SALT RIVER DRAINAGE

|       |      |           |    |    |                             |
|-------|------|-----------|----|----|-----------------------------|
| 202.9 | 8.25 | Mete-Maya | 33 | 75 | 512 ft mi. Roosevelt        |
| 22.5  | 0.75 | Mete-Maya | 23 | 6  | Toots Creek mi. Roosevelt   |
| 106.5 | 1.75 | Mete-Maya | 21 | 62 | Verde River spoke Mohaveapo |

GILA RIVER DRAINAGE

|      |      |           |    |    |                           |
|------|------|-----------|----|----|---------------------------|
| 32.3 | 1.8  | Mete-Maya | 65 | 30 | Gila River mi. Gila       |
| 2.5  | 4.35 | Mete-Maya | 43 | 34 | Gila River mi. Sonoita    |
| 4.4  | 10.1 | Mete-Maya | 45 | 16 | Gila River mi. Sjoomon    |
| 3.3  | 18.1 | Mete-Maya | 50 | 18 | Gila River mi. Virden     |
| 2.7  | 30.0 | Mete-Maya | 44 | 12 | Hancock River at Cliffton |
| 0.0  | 4.2  | Mete-Maya | 41 | 6  | Hancock River at Gilawood |

MIMPESA RIVER DRAINAGE

|     |    |           |    |   |                           |
|-----|----|-----------|----|---|---------------------------|
| 2.5 | 0. | Mete-Maya | 39 | 0 | Mimpesa River mi. Mimbres |
|-----|----|-----------|----|---|---------------------------|

COLORADO RIVER DRAINAGE

|     |      |            |    |     |                             |
|-----|------|------------|----|-----|-----------------------------|
| 3.8 | 8.5  | Mete-Jemez | 23 | 5   | Little Colorado River spoke |
| 0.5 | 10.5 | Aqua-Jemez | 25 | 100 | Gilbert Dam - Lake          |
| 0.0 | 16.0 | Aqua-Jemez | 26 | 0   | South Fork - Lake           |

ARIZON RIVER DRAINAGE

|     |      |                   |    |    |                               |
|-----|------|-------------------|----|----|-------------------------------|
| 2.4 | 2.68 | Apache-Sitgreaves | 12 | 74 | Arizona River mi. Littlefield |
|-----|------|-------------------|----|----|-------------------------------|

GRANTIE CREEK DRAINAGE

|     |     |               |   |   |               |
|-----|-----|---------------|---|---|---------------|
| 0.0 | 0.0 | Grantie Creek | 1 | 1 | Grantie Creek |
|-----|-----|---------------|---|---|---------------|

1. If you have 100 ft of grade to drop in 100 ft of distance, it will take 10 ft of elevation change to drop 100 ft of distance.

2. If you have 10 ft of grade to drop in 100 ft of distance, it will take 100 ft of elevation change to drop 10 ft of distance.

3. The ratio of 10 ft of elevation change to 100 ft of distance is 1/10 or 10%.

## RESERVOIR STORAGE (Thousand Acre Feet) END OF MONTH

ABOUT MARCH 1, 1970

| Basin or Stream                | RESERVOIR                           | Usable Capacity | Usable Storage |           |                      |
|--------------------------------|-------------------------------------|-----------------|----------------|-----------|----------------------|
|                                |                                     |                 | This Year      | Last Year | Average <sup>+</sup> |
| <u>GILA RIVER DRAINAGE</u>     |                                     |                 |                |           |                      |
| Agua Fria                      | Lake Pleasant                       | 157.6           | 72.1           | 112.4     | 42.2                 |
| Granite                        | Watson Lake                         | 4.7             | 1.5            | 4.1       | ---                  |
| Granite                        | Willow Creek                        | 6.1             | 2.2            | 3.4       | ---                  |
| Gila                           | San Carlos                          | 984.9           | 179.6          | 474.0     | 110.9                |
| Verde (2)                      | Bartlett & Horseshoe                | 317.7           | 215.6          | 239.1     | 117.8                |
| Salt (4)                       | Roosevelt, Apache, Canyon & Saguaro | 1755.0          | 1259.2         | 1523.0    | 960.6                |
| <u>COLORADO RIVER DRAINAGE</u> |                                     |                 |                |           |                      |
| Colorado                       | Lake Havasu                         | 619.4           | 552.8          | 553.5     | 535.4                |
| Colorado                       | Lake Mohave                         | 1810.0          | 1612.9         | 1664.0    | 1697.0               |
| Colorado                       | Lake Mead                           | 26159.0         | 16854.0        | 15464.0   | 16415.8              |
| Colorado                       | Lake Powell                         | 25002.0         | 9456.0         | 9325.0    | ---                  |
| Little Colorado                | Lyman                               | 30.6            | 20.0           | 19.1      | 9.5                  |
| Little Colorado                | Show Low Lake                       | 5.1             | 0.2            | 0.5       | 1.6*                 |

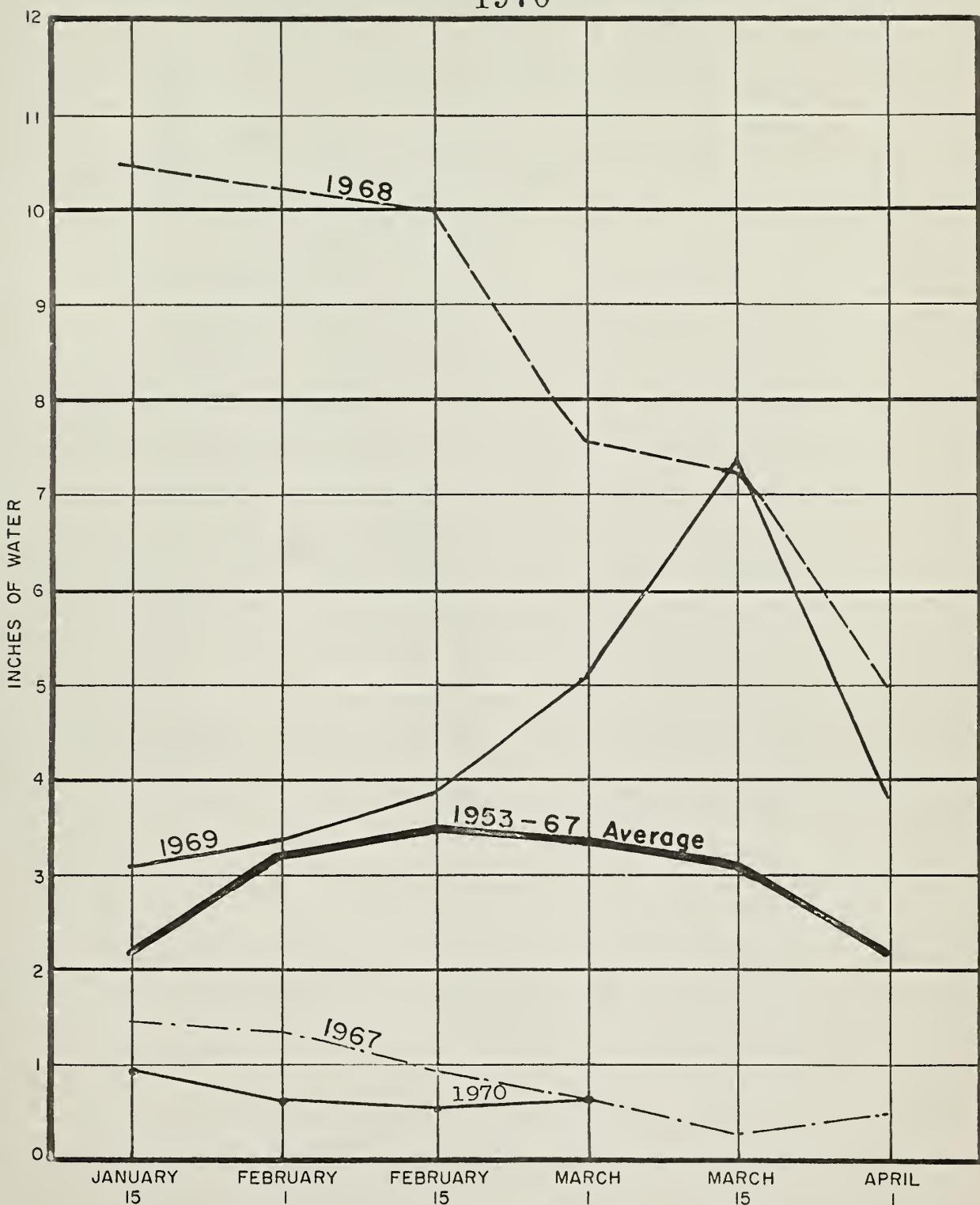
<sup>+</sup> Based on 15-year period 1953-67.

\* Average is for less than 15 years of record in the 1953-67 period.



# RELATIVE SNOW WATER ACCUMULATION ARIZONA

1970





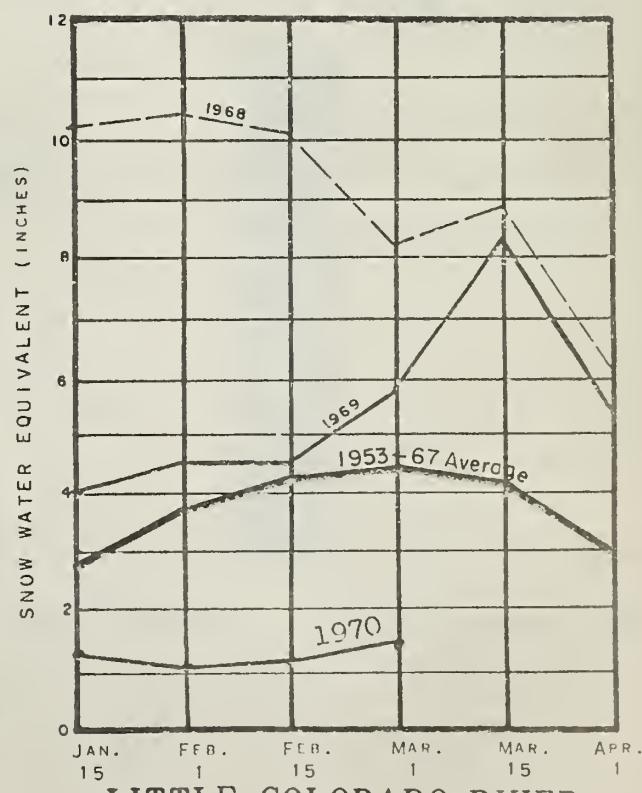
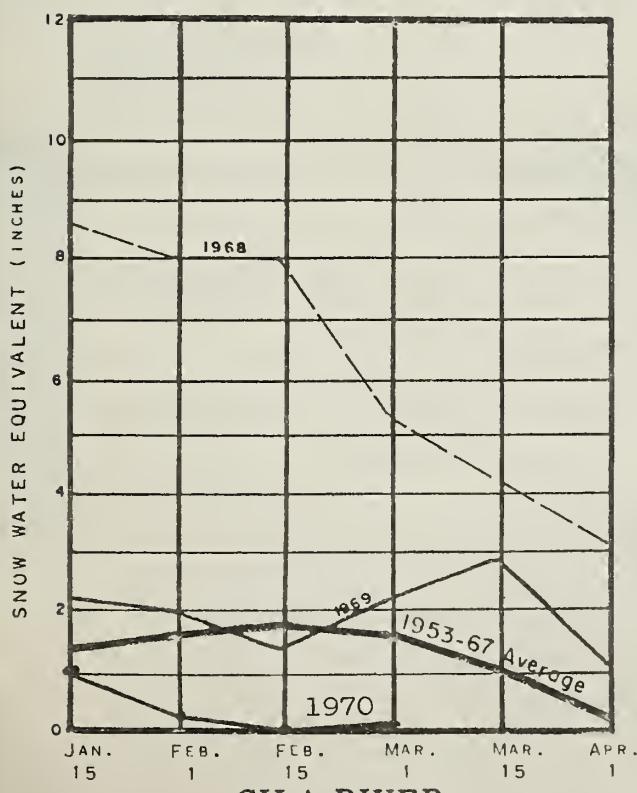
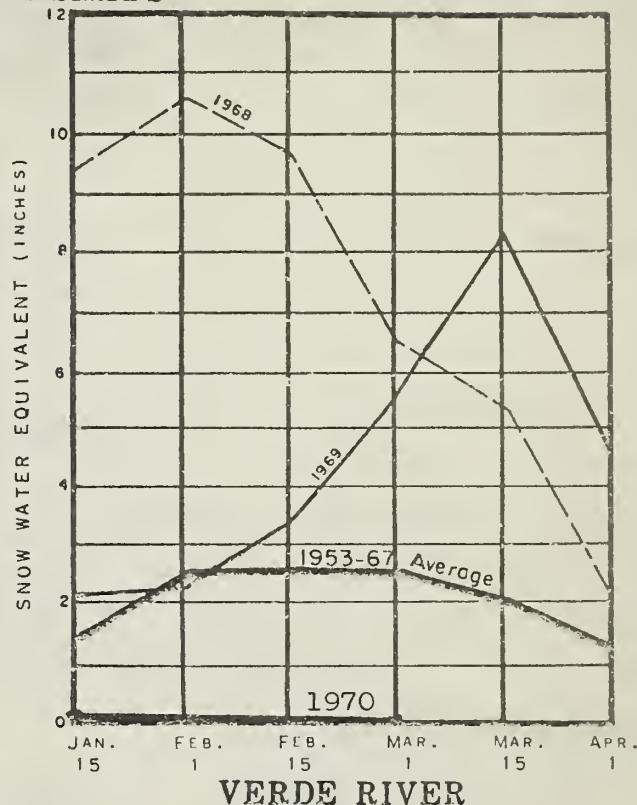
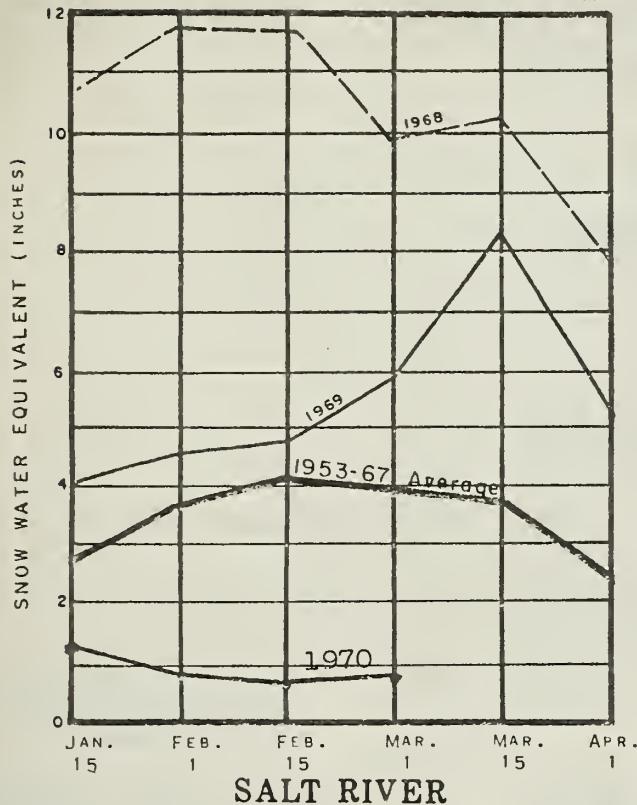
## **SUMMARY of SNOW MEASUREMENTS** (COMPARISON WITH PREVIOUS YEARS)

MARCH 1, 1970

| RIVER BASIN and/or SUB-WATERSHED | Number of Courses Averaged | THIS YEAR'S SNOW WATER AS PERCENT OF: |         |
|----------------------------------|----------------------------|---------------------------------------|---------|
|                                  |                            | Last Year                             | Average |
| Gila                             | 6                          | 2.4                                   | 2.5     |
| Salt                             | 9                          | 13                                    | 19      |
| Verde                            | 7                          | 0                                     | 0       |
| Little Colorado                  | 4                          | 25                                    | 33      |



1970  
ARIZONA SNOW COVER  
BY WATERSHEDS





WATER SUPPLY INVENTORY

SALT RIVER VALLEY SYSTEM

MARCH 1, 1970

3,000,000

2,500,000

2,000,000

AVERAGE SUPPLY ON  
MARCH 1



Average Summer  
Runoff

Average Spring  
Runoff

Average Storage

A C R E   F E E T

1,500,000

1,000,000

500,000

0

ANTICIPATED 1970 SUPPLY



Average Summer  
Runoff

Forecast Runoff  
(March-May)

Present Storage

\* Based on Present Storage + Forecast Spring Runoff + Average Summer Runoff



**SHOW** ABOUT MARCH 1, 1970

| DRAINAGE BASIN and/or SNOW COURSE |           | THIS YEAR      |                     |                        | PAST RECORD |           |
|-----------------------------------|-----------|----------------|---------------------|------------------------|-------------|-----------|
| NAME                              | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Last Year   | Average + |
| <u>GILA RIVER</u>                 |           |                |                     |                        |             |           |
| Bear Wallow                       | 8100      | 2/27           | 0                   | 0.0                    | 2.4         | 4.4       |
| Beaver Head                       | 8000      | 2/28           | 0                   | 0.0                    | 2.5         | 2.3       |
| Coronado Trail                    | 8000      | 2/27           | 0                   | 0.0                    | 5.6         | 2.1       |
| Crazy Horse (A)                   | 10200     | 2/17           | 24                  | 7.8                    | ---         | ---       |
| Emory Pass #1 *                   | 7800      | 2/27           | T                   | 0.0                    | 0.0         | ---       |
| Emory Pass #2 *                   | 7800      | 2/27           | 2                   | 0.5                    | 0.0         | ---       |
| Frisco Divide                     | 8000      | 2/27           | 1                   | 0.3                    | 1.4         | 2.0       |
| Hannagan Meadows *                | 9090      | 2/28           | 14                  | 2.9                    | 12.6        | ---       |
| High Peak (A)                     | 10500     | 2/17           | 24                  | 7.8                    | ---         | ---       |
| Hummingbird (A)                   | 10550     | 3/1            | 37                  | 11.5                   | 17.4        | ---       |
| Ice King                          | 8020      | 2/27           | 15                  | 4.7                    | 6.1         | 6.1**     |
| McKnight Cabin *                  | 9300      | 3/3            | 12                  | 3.6                    | ---         | ---       |
| Mogollon                          | 7000      | 2/27           | 0                   | 0.0                    | 0.0         | 1.9       |
| Nutrioso                          | 8500      | 2/27           | 0                   | 0.0                    | 1.6         | 1.6       |
| Redstone Trail                    | 8600      | 2/27           | 18                  | 5.2                    | 8.0         | 7.6**     |
| Rose Canyon                       | 7300      | 2/27           | 0                   | 0.0                    | 1.1         | 2.3       |
| Silver Creek Divide               | 9000      | 2/27           | 29                  | 7.6                    | 12.0        | 11.5**    |
| State Line                        | 8000      | 2/27           | 0                   | 0.0                    | 1.4         | 1.9       |
| Whitewater (A)                    | 10750     | 3/1            | 62                  | 17.4                   | 18.8        | ---       |
| Whitewater (A)                    | 10750     | 3/3            | 80                  | 19.6                   | 18.8        | ---       |
| Hummingbird                       | 10550     | 3/3            | 56                  | 13.7                   | 17.4        | ---       |
| <u>SALT RIVER</u>                 |           |                |                     |                        |             |           |
| Baldy *                           | 9125      | 2/27           | 5                   | 1.2                    | 9.2         | 6.8       |
| Beaver Head                       | 8000      | 2/28           | 0                   | 0.0                    | 2.5         | 2.3       |
| Canyon Creek                      | 7500      | 2/27           | 0                   | 0.0                    | 3.9         | 2.8**     |
| Canyon Point                      | 7600      | 2/27           | 0                   | 0.0                    | 5.3         | ---       |
| Coronado Trail                    | 8000      | 2/27           | 0                   | 0.0                    | 5.6         | 2.1       |
| Forest Dale                       | 6430      | 2/27           | 0                   | 0.0                    | 0.9         | 0.6       |
| Ft. Apache                        | 9160      | 2/27           | 15                  | 4.6                    | 9.1         | 7.3       |
| Hannagan Meadows                  | 9090      | 2/28           | 14                  | 2.9                    | 12.6        | ---       |
| Hawley Lake                       | 8300      | 2/27           | T                   | 0.2                    | 9.5         | ---       |
| Heber                             | 7600      | 2/27           | 0                   | 0.0                    | 4.8         | 2.9       |
| Maverick Fork                     | 9050      | 2/27           | 5                   | 1.1                    | 12.3        | 8.2       |
| McNary                            | 7200      | 2/27           | 0                   | 0.0                    | 2.9         | 2.0       |
| Milk Ranch                        | 7000      | 2/27           | 0                   | 0.0                    | 1.1         | 1.0       |
| Mt. Ord (A)                       | 11000     | 2/27           | 0                   | 0.0                    | 26.0        | ---       |
| Nutrioso *                        | 8500      | 2/27           | 0                   | 0.0                    | 1.6         | 1.6       |
| Smith Cienega (A)                 | 9850      | 2/27           | 30                  | 9.9                    | 18.6        | ---       |
| Wilson Lake                       | 9000      | 2/27           | 19                  | 6.1                    | 14.1        | ---       |
| Workman Creek                     | 6900      | 2/25           | 0                   | 0.0                    | 7.7         | 3.6       |
| <u>BILL WILLIAMS RIVER</u>        |           |                |                     |                        |             |           |
| Camp Wood *                       | 5700      | 2/27           | 0                   | 0.0                    | 2.7         | 0.4       |
| Copper Basin Divide               | 6720      | 2/27           | 0                   | 0.0                    | 3.6         | 1.5**     |
| Iron Springs                      | 6200      | 2/27           | 0                   | 0.0                    | 0.9         | 0.2       |



**SNOW**

ABOUT MARCH 1, 1970

| DRAINAGE BASIN and/or SNOW COURSE   |       | THIS YEAR      |                     |                        | PAST RECORD |           |
|---|-------|----------------|---------------------|------------------------|-------------|-----------|
|   |       | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Last Year   | Average + |
| <u>VERDE RIVER</u>  |       |                |                     |                        |             |           |
| Baker Butte   | 7300  | 2/27           | 0                   | 0.0                    | 9.6         | ---       |
| Camp Wood   | 5700  | 2/27           | 0                   | 0.0                    | 2.7         | 0.4       |
| Chalender   | 7100  | 2/27           | 0                   | 0.0                    | 4.4         | 2.3       |
| Copper Basin Divide   | 6720  | 2/27           | 0                   | 0.0                    | 3.6         | 1.6**     |
| Fort Valley   | 7350  | 2/27           | 0                   | 0.0                    | 5.1         | 1.8       |
| Gaddes Canyon   | 7600  | 2/27           | 0                   | 0.0                    | 8.2         | 4.0**     |
| Happy Jack  | 7630  | 2/27           | 0                   | 0.0                    | 5.8         | 2.7       |
| Iron Springs *  | 6200  | 2/27           | 0                   | 0.0                    | 0.9         | 0.2       |
| Mingus Mountain   | 7100  | 2/27           | 0                   | 0.0                    | 2.9         | 0.6       |
| Mormon Lake *   | 7350  | 2/28           | 0                   | 0.0                    | 5.6         | 2.9       |
| Mormon Mountain   | 7500  | 2/28           | 0                   | 0.0                    | 9.8         | 4.1       |
| Newman Park   | 6750  | 2/28           | 0                   | 0.0                    | 5.8         | 1.3**     |
| Snow Bowl #1  | 10260 | 2/27           | 18                  | 4.8                    | 15.4        | 8.7**     |
| Snow Bowl #2  | 11000 | 2/27           | 30                  | 6.5                    | 22.8        | ---       |
| White Horse Lake Jct.   | 7150  | 2/26           | 0                   | 0.0                    | 4.9         | ---       |
| White Spar  | 6000  | 2/27           | 0                   | 0.0                    | 1.3         | 0.2**     |
| <u>LOWER COLORADO RIVER</u>   |       |                |                     |                        |             |           |
| Bill Wms. Intermediate  | 8550  | 2/26           | 2                   | 0.7                    | 14.2        | ---       |
| Bill Williams Summit  | 8950  | 2/26           | 15                  | 3.6                    | 19.7        | ---       |
| Bright Angel  | 8400  | 2/15           | 10                  | 3.0                    | 22.5        | ---       |
| Chalender *   | 7100  | 2/27           | 0                   | 0.0                    | 4.4         | 2.3       |
| Fort Valley   | 7350  | 2/27           | 0                   | 0.0                    | 5.1         | 1.8       |
| Grand Canyon  | 7500  | 2/27           | 0                   | 0.0                    | 3.5         | 1.5       |
| Williams Ski Run  | 7720  | 2/26           | 4                   | 1.4                    | 5.5         | ---       |
| <u>LITTLE COLORADO RIVER</u>  |       |                |                     |                        |             |           |
| Agassiz   | 11200 | 2/27           | 47                  | 13.8                   |             |           |
| Baldy   | 9125  | 2/27           | 5                   | 1.2                    | 9.2         | 6.8       |
| Canyon Creek  | 7500  | 2/27           | 0                   | 0.0                    | 3.9         | 2.8**     |
| Canyon Point  | 7600  | 2/27           | 0                   | 0.0                    | 5.3         | ---       |
| Cheese Springs  | 8600  | 2/27           | 11                  | 3.9                    | 8.4         | ---       |
| Forest Dale   | 6430  | 2/27           | 0                   | 0.0                    | 0.9         | 0.6       |
| Ft. Apache  | 9160  | 2/27           | 15                  | 4.6                    | 9.1         | 7.3       |
| Fort Valley   | 7350  | 2/27           | 0                   | 0.0                    | 5.1         | 1.8       |
| Happy Jack *  | 7630  | 2/27           | 0                   | 0.0                    | 5.8         | 2.7       |
| Heber   | 7600  | 2/27           | 0                   | 0.0                    | 4.8         | 2.9       |
| Inner Basin #1  | 10100 | 2/27           | 35                  | 12.0                   | ---         | ---       |
| Inner Basin #2  | 9750  | 2/27           | 18                  | 6.1                    | 15.4        | ---       |
| Inner Basin #3  | 10250 | 2/27           | 20                  | 6.5                    | 13.0        | ---       |
| McNary  | 7200  | 2/27           | 0                   | 0.0                    | 2.9         | 2.0       |
| Mormon Lake   | 7350  | 2/28           | 0                   | 0.0                    | 5.6         | 2.9       |
| Mormon Mountain   | 7500  | 2/28           | 0                   | 0.0                    | 9.8         | 4.1       |
| Nutrioso  | 8500  | 2/27           | 0                   | 0.0                    | 1.6         | 1.6       |
| Snow Bowl #1  | 10260 | 2/27           | 18                  | 4.8                    | 15.4        | 8.7**     |
| Snow Bowl #2  | 11000 | 2/27           | 30                  | 6.5                    | 22.8        | ---       |
| Wilson Lake *   | 9000  | 2/27           | 19                  | 6.1                    | 14.1        | ---       |
| + Average for 15-year period, 1953-67    (*) Adjacent drainage.    (**) Adjusted average (A) Aerial observation; Water content estimated. |       |                |                     |                        |             |           |







## SOIL MOISTURE

ABOUT MARCH 1, 1970

| DRAINAGE BASIN and/or STATION |           | Profile (Inches) |          | Date of Survey | Soil Moisture (Inches) |           |         |
|-------------------------------|-----------|------------------|----------|----------------|------------------------|-----------|---------|
| Name                          | Elevation | Depth            | Capacity |                | This Year              | Last Year | Average |
| <u>GILA RIVER</u>             |           |                  |          |                |                        |           |         |
| Frisco Divide                 | 8000      | 48               | 13.3     | 2/27           | 10.1                   | 9.4       | 10.9    |
| <u>SALT RIVER</u>             |           |                  |          |                |                        |           |         |
| Black River Divide            | 9100      | 48               | 16.8     | 2/27           | 17.8                   | 14.6      | 15.8    |
| Canyon Creek                  | 7500      | 48               | 18.3     | 2/27           | 17.0                   | 18.0      | 15.1    |
| Corduroy Creek                | 6000      | 48               | 16.0     | 2/27           | 9.3                    | 14.2      | 8.7     |
| McNary                        | 7200      | 48               | 16.3     | 2/27           | 14.0                   | 17.9      | 14.6    |
| <u>VERDE RIVER</u>            |           |                  |          |                |                        |           |         |
| Mormon Mountain               | 7500      | 48               | 16.1     | 2/28           | 17.5                   | 17.7      | 15.4    |
| Newman Park                   | 6750      | 48               | 17.7     | 2/28           | 13.1                   | 18.4      | 14.9    |



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SNOW COURSE

Baker Butte  
Baldy  
Bear Wallow  
Beaver Head  
Bill Williams Intermediate  
Bill Williams Summit  
Bright Angel  
Camp Wood  
Canyon Creek  
Canyon Point  
Chalender  
Cheese Springs  
Copper Basin Divide  
Coronado Trail  
Crazy Horse  
Emory Pass  
Forest Dale  
Ft. Apache  
Fort Valley  
Frisco Divide  
Gaddes Canyon  
Grand Canyon  
Hannagan Meadows  
Happy Jack  
Hawley Lake  
Heber  
High Peak  
Hummingbird  
Ice King  
Inner Basin #1, #2, #3  
Iron Springs  
Maverick Fork  
McKnight Cabin  
McNary  
Milk Ranch  
Mingus Mountain  
Mogollon  
Mormon Lake  
Mormon Mountain  
Mt. Ord  
Munds Park  
Newman Park  
Nutrioso  
Redstone Trail  
Rose Canyon  
Silver Creek Divide  
Smith Cienega  
Snow Bowl #1 and #2  
State Line  
White Horse Lake Junction  
White Spar  
Whitewater  
Williams Ski Run  
Wilson Lake  
Workman Creek

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SNOW SURVEYOR

SCS - Dick Enz  
SCS - Bill Cole  
Forest Service - Carl Sollers  
N. A. Josh  
Forest Service - John Sotelo  
Forest Service - John Sotelo  
National Park Service - Kenneth Hulick, Dist. Rgr.  
Forest Service - Walter G. Richardson  
SCS - Dick Enz  
SCS - Dick Enz  
Forest Service - M. Freshour  
SCS - Bill Cole  
SCS - Bill Gray  
Forest Service - John W. Holt and John O. Maeder  
Forest Service - Loyd Barnett  
SCS - Jim Powell and Travis Stevenson  
Bureau of Indian Affairs - Raymond Endfield  
SCS - Bill Cole  
Rocky Mountain Forest & Range Exp. Station  
Forest Service - J. M. Sanchez  
Paul G. Lidbeck  
National Park Service - Robert E. Scott, Dist. Rgr.  
N. A. Josh  
Forest Service - Don W. Witt  
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SCS - Dick Enz  
Forest Service - Loyd Barnett  
Ray Freeman  
James R. Wray  
SCS and USBR - Jack Jorgensen and Jay Roberts  
SCS - Bill Gray  
SCS - Bill Cole  
Ray Freeman  
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Bureau of Indian Affairs - Raymond Endfield  
Paul G. Lidbeck  
James R. Wray  
SCS - Jack Jorgensen  
SCS - Jack Jorgensen  
Salt River Project - Bill Warskow  
SCS - Jack Jorgensen  
SCS - Jack Jorgensen  
Forest Service - John W. Holt and John O. Maeder  
James R. Wray  
Forest Service - Carl Sollers  
James R. Wray  
Salt River Project - Bill Warskow  
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Forest Service - J. M. Sanchez  
Forest Service - John Sotelo  
SCS - Bill Gray  
Ray Freeman  
Forest Service - John Sotelo  
SCS - Bill Cole  
Rocky Mountain Forest & Range Exp. Station



## The Following Organizations Cooperate in the Arizona Snow Survey Work

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Department of Agriculture

Soil Conservation Service

Forest Service

Apache Forest

Caconino Forest

Coronado Forest

Gila Forest

Kaibab Forest

Prescott Forest

Rocky Mountain Forest and Range Experiment Station

Tonto Forest

Department of Commerce

Weather Bureau

Arizona Section

Department of Interior

Bureau of Reclamation

Region III

Geological Survey

Arizona District

Bureau of Indian Affairs

Fort Apache Reservation

San Carlos Irrigation Project

National Park Service

Grand Canyon National Park

Gila Water Commissioner

Safford, Arizona

### STATE

University of Arizona

Arizona Agricultural Experiment Station

Water Resource Research Center

### IRRIGATION PROJECTS

Salt River Valley Water Users' Association

Phoenix, Arizona

San Carlos Irrigation and Drainage District

Coolidge, Arizona

### PRIVATE

Southwest Forest Industries, Inc.

McNary, Arizona

Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

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with the Snow Survey"*